# The Knowledge on Scabies among Students in a Pesantren in East Jakarta, Before and After Health Education

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**Abstract**

*Scabies is a skin disease commonly found in overcrowded and poor hygiene environment. The purpose of this study was to determine the level of knowledge of students in pesantren X, East Jakarta, before and after conducting health education on scabies. The study design was a pre-post study and the data were taken on March 8, 2014. All students who came during the data collection are the research subjects. Data was collected through a questionnaire consisting of 25 questions about the etiology, clinical symptoms, treatment, transmission, and prevention of scabies. The data were processed with SPSS version 20 and was tested with marginal homogeneity. The results showed that of 104 respondents, prior to health education, most students have a poor level of knowledge on the topic of etiology (68.3%), clinical symptoms (64.2%), treatment (51.9%), prevention (39,4%), and transmission (27.9%). After a health eduvation lecture, more than 50% of students showed a good level of knowledge on every topic on scabies (ranging from 65.4% and the highest 82.7%) while the students with poor level of knowledge on every topic ranged from 4.8%-9.6%. Marginal homogeneity test showed significant differences in knowledge before and after health education (p<0.01). In conclusion, health education is effective in increasing knowledge about scabies.*

***Keywords:*** *scabies, knowledge, pesantren students, health education*

## Tingkat Pengetahuan Siswa Pesantren di Jakarta Timur Sebelum dan Sesudah Penyuluhan Skabies

***Abstrak***

*Skabies adalah penyakit kulit yang banyak terdapat di lingkungan padat penduduk dan kebersihan yang buruk.Tujuan penelitian ini untuk mengetahui tingkat pengetahuan siswa pesantren X, Jakarta Timur, sebelum dan sesudah penyuluhan skabies. Desain penelitian adalah pre-post study dan data diambil pada 8 Maret 2014. Semua siswa yang datang saat pengumpulan data dijadikan subyek penelitian. Data dikumpulkan dengan kuesioner berisi 25 pertanyaan tentang etiologi, gejala klinis, pengobatan, penularan, dan pencegahan skabies. Data diolah dengan SPSS versi 20 dan diuji dengan marginal homogeneity. Dari 104 responden, sebelum penyuluhan, sebagian besar siswa memiliki tingkat pengetahuan yang buruk tentang topik etiologi (68,3%), manifestasi klinis (64,2%), pengobatan (51,9%), pencegahan (39,4%), dan penularan (27,9%). Setelah penyuluhan, lebih dari 50% siswa memiliki pengetahuan yang baik pada setiap topik skabies (paling rendah 65,4% dan paling tinggi 82,7%) dan tingkat pengetahuan buruk pada setiap topik scabies 4,8%-9,6%. Uji marginal homogeneity menunjukkan perbedaan bermakna pada pengetahuan sebelum dan sesudah penyuluhan (p<0,01). Disimpulkan penyuluhan efektif meningkatkan pengetahuan tentang skabies.*

***Kata kunci:*** *scabies, pengetahuan, siswapesantren, penyuluhan*

## Introduction

In developing countries, skin diseases are one of the most common health problems as seen by the large number of patients diagnosed with skin problems in clinical settings[1] with prevalence 20-80%.[2] The most important risk factor of skin diseases is household overcrowding, along with socioeconomic status, malnutrition, and poor hygiene standards.[3] The prevalence of scabies worldwide is estimated to be up to 300 million, making it a significant health problem to developing countries.[4] The highest rates of infection are present amongst children, specifically preschool to adolescents.[5]

Scabies is infestation of the skin by *Sarcoptesscabiei,* the human itch mite.[6] As prolonged skin-to-skin con-tact is the method of transmission, household overcrowding or living in overcrowded conditions poses a high risk for infection and infestation of scabies.

Household overcrowding is common in developing countries as the socioeconomic factor limits families or institutions to having small living spaces. An example of household overcrowding that can be seen in Indonesia is a *pesantren;* an Islamic boarding school. The schools are mostly limited in facilities including living quarters while the children themselves are limited in knowledge and tools needed for proper hygiene standards. Along with living conditions which increase direct and indirect contact between children, this results in the development of skin diseases including scabies. Studies in Indonesia have shown a high prevalence of scabies in *pesantren* (78.7% in a *pesantren* in Jakarta, and 66.7% in a *pesantren* at Pasuruan).[7,8]

A study by Reid and Thorne in 1990 on the effect of intervention by public health education on scabies infestation in a village showed that cure rate was 85% despite no statistically significant results in prevalence rate. If seen by age group, number of infection among residents under 15 years old decreased in number. In their study, the group was given an educational session.[9] As cure rate may as well show applied changes in the level of knowledge, the study has shown that intervention by health education, such as a lecture session can bring a change in the level of knowledge on scabies. Level of knowledge can be measured by pre- and post-test as done by Onyango Ouma *et al*.[10]

There have not been much studies conducted on scabies in Indonesia when compared to other developing countries such as India and Africa. Based on the facts above, the intervention by public health education can be utilized to intervene with scabies infestation as it brings significant change to the level of knowledge within a group at risk.

The objective of this research is to know the level of knowledge of *pesantren* students on scabies and to study the effectiveness of health education towards their knowledge on scabies.

## Methods

The research used a pre-post study design with health education as the intervention to try to find out the improvement of knowledge level of students in *pesantren* X, East Jakarta about scabies in general before and after a scabies lecture. It was con-ducted from around February 2014 to May 2014 in Jakarta. Data collection was conducted twice (before and after the lecture) on the 8th of March 2014.

The target population of this research is male students from *pesantren* X, East Jakarta who came to the health education and fulfilled the inclusion criteria, which were students who were present, followed the lecture on scabies, and filled the questionnaires before and after the lecture. The exclusion criteria are students that refuse to take part in the study. In addition, drop out criteria for this study was subjects who did not fill both questionnaires correctly and completely or resigned from the research.

The independent variable of this study is the scabies lecture, while the dependent variable of this study is the level of knowledge of students in *pesantren* X, East Jakarta, after the scabies lecture.

Informed consent from the subjects were first obtained as they have the right to refuse taking part in the study. For those who agreed on undergoing the study, they joined the lecture and were given questionnaires before and after the lecture. The lecture was given by one resource person who is a professor of parasitology and conducted for 1 hour. While the subjects were filling in the questionnaires, researchers accompanied them to ensure correct filling of the questionnaires. Data collection in this research was only conducted twice for each research subject, once before (pre-test) and once after (post-test) the scabies lecture.

Data that was collected were processed by editing, coding and entry into SPSS based template. Analysis and interpretation was con-ducted using marginal homogeneity test with significance ($p<0.01$) using SPSS program from Windows version 20. Level of knowledge is the participant's understanding toward scabies which was scored through questionnaires which have been validated. The questionnaires consist of questions regarding the morphology,

symptoms, infection, treatment, and management of scabies. The total of the test scores was divided into 3 categories: good (>80%), moderate (60-79%), poor (<59%). Lecture is a form of health education given to increase the level of knowledge of participants on scabies. The lecture is given by an expert on this subject who will present in front of the participants with the aid of power point slides.

## Results

Health education is one method to increase the knowledge of respondents on diseases met in daily life. Amongst male *pesantren* students, scabies is a common disease. They face this disease in their environment but do not know how to identify this disease and what to do to prevent or treat the disease.

The study involved 104 students from *pesantren* X. First, their knowledge on scabies was categorized as good, moderate, and poor according to their questionnaire scores. Second, health education on scabies was carried out by means of a lecture. Questionnaires given before and after the lecture had the exact same questions about the etiology, clinical manifestation, treatment, transmission, and prevention of scabies. Each category has 5 questions.

By comparing pre-test and post-test scores, Table 1 shows that the level of knowledge of the students on the etiology of scabies before the health education increased significantly (marginal homogeneity test, $p<0.01$) in comparison to before the health education. This result thus shows the two following things: first, it shows that after health education, there is an increase in the level of knowledge on the etiology of scabies; and second, it shows that the health education method is effective in increasing the level of knowledge of the students. Out of all the students who had poor knowledge (68.3%), more than half of them (78.9%) obtained a good level of knowledge after the health education. The same occurred to students who had moderate level of knowledge where 83.3% had good level of knowledge after health education. On the topic of scabies etiology, the total amount of students with good level of knowledge increased by almost six fold from 14.4% to 82.7% while the number of students who had poor level of knowledge decreased significantly by more than ten fold from 68.3% to 5.8%.

**Table 1. Level of Knowledge on Scabies Etiology**

| Level of Knowledge | After Lecture | | | Total n (%) |
|---|---|---|---|---|
| | Good | Moderate | Poor | |
| **Before Lecture** | | | | |
| Good | 15 | 0 | 0 | 15 (14.4) |
| Moderate | 15 | 3 | 0 | 18 (17.3) |
| Poor | 56 | 9 | 6 | 71 (68.3) |
| **Total** | 86 (82.7) | 12 (11.5) | 6 (5.8) | 104 (100) |

Similar to the results of Etiology, the results for the level of knowledge of the students on the clinical symptom of scabies experienced a significant increase (marginal homogeneity, $p<0.01$) as shown in Table 2. Out of all the students who had poor knowledge on the clinical symptom of scabies, more than half of them (70.1%) had a good level of knowledge after the health education.

**Table 2. Level of Knowledge on Scabies Clinical Symptoms**

| Level of Knowledge | After Lecture | | | Total n (%) |
|---|---|---|---|---|
| | Good | Moderate | Poor | |
| **Before Lecture** | | | | |
| Good | 7 | 1 | 0 | 8 (7.7) |
| Moderate | 22 | 7 | 0 | 29 (27.9) |
| Poor | 47 | 15 | 5 | 67 (64.2) |
| **Total** | 76 (73.1) | 23 (22.1) | 5 (4.8) | 104 (100) |

This increase of knowledge also occurred to 75.9% of students with moderate knowledge where they had good level of knowledge after the lecture. Thus, the total amount of students with good level of knowledge increased by almost tenfold from 7.67% to 73.1% while students with poor level of knowledge decrease significantly from 64.2% to 4.81%.

In the topic of scabies treatment, Table 3 shows a similar pattern to the previous two tables where the level of knowledge of students had a significant increase (marginal homogeneity $p<0.01$).

**Table 3. Level of Knowledge on Scabies Tretment**

| Level of Knowledge | After Lecture | | | Total n (%) |
|---|---|---|---|---|
| | Good | Moderate | Poor | |
| **Before Lecture** | | | | |
| Good | 14 | 7 | 2 | 23 (22.1) |
| Moderate | 16 | 9 | 2 | 27 (26.0) |
| Poor | 38 | 10 | 6 | 54 (51.9) |
| **Total** | 68 (65.4) | 26 (25.0) | 10 (9.6) | 104 (100) |

Out of all the students who had poor level of knowledge, more than half (70.4%) increased to a good level of knowledge on scabies treatment; and of the students with moderate knowledge, 70% had an increase of knowledge. The total amount of students with good level of knowledge increased from 22.1% to 65.4% while the total amount of students with poor level of knowledge decreased from 51.9% to 9.6%.

In the topic of scabies transmission, Table 4 shows that a majority of the students (52.9%) already have a good level of knowledge. Only 27.9% of the students had poor level of knowledge on scabies transmission. Out of all the students with poor level of knowledge, 69.0% of them had good level of knowledge after the health education, and a total of 86.2% had an increase in their level of knowledge on scabies transmission from either good or moderate level.

**Table 4. Level of Knowledge on Scabies Transmission**

| Level of Knowledge | After Lecture | | | Total n (%) |
|---|---|---|---|---|
| | Good | Moderate | Poor | |
| **Before Lecture** | | | | |
| Good | 52 | 2 | 1 | 55 (52.9) |
| Moderate | 14 | 5 | 1 | 20 (18.2) |
| Poor | 20 | 5 | 4 | 29 (27.9) |
| **Total** | 68 (82.7) | 12 (11.5) | 6 (5.8) | 104 (100) |

**Table 5. Level of Knowledge on Scabies Transmission**

| Level of Knowledge | After Lecture | | | Total n (%) |
|---|---|---|---|---|
| | Good | Moderate | Poor | |
| **Before Lecture** | | | | |
| Good | 33 | 5 | 0 | 38 (36.5) |
| Moderate | 19 | 5 | 1 | 25 (24.0) |
| Poor | 24 | 9 | 8 | 41 (39.4) |
| **Total** | 76 (73.1) | 19 (18.3) | 9 (8.7) | 104 (100) |

The amount of students with good level of knowledge on scabies transmission still increased significantly (marginal homogeneity $p<0.01$) from 52.9% to 82.7% while the amount of students with poor level of knowledge decreased from 27.88% to 5.78%.

Table 5 shows that the level of knowledge on students on scabies prevention had a significant increase (marginal homogeneity, $p<0.01$). Out of all the students had poor level of knowledge, 58.54% of them had a good level of knowledge after the health education; and out of all the students who had moderate level of knowledge, 76% also had a good level of knowledge after the health education. Therefore, there is a significant increase in the level of knowledge amongst students. The total amount of students who had good level of knowledge increased by almost two fold, from 36.54% to 73.1% while those with poor knowledge decreased from 39.4% to 8.7%.

## Discussion

As one of the developing countries, skin diseases such as scabies is a common health problem in Indonesia. Although Jakarta is a metropolitan city, scabies is still a problem especially in places where people live in overcrowded and unhygienic conditions. With rates of infection occurring most amongst children, such conditions can be met in a *pesantren*. Scabies is generally harmless and preventable yet its infection causes pruritus that can disturb daily activities as it is very distracting. The pruritus, if not promptly treated, will lead to serious complications as profuse scratching will cause excoriation and erosion to the skin, making it vulnerable to bacterial infection. As transmission of scabies occurs by prolonged direct contact or indirect contact with an infected person, the density of a population has an effect on the

prevalence of scabies infestation. In a *pesantren,* the students live within a dense population with poor hygiene and sanitation which explains why there have been studies showing high prevalence in scabies infection amongst this population.

Knowledge on a disease has an effect on a person's attitude and practice towards a disease;[11] thus, health education is as one way to intervene with the occurrence of a disease, in this case, scabies. Thus, to change the habits that can risk scabies infestation and reduce its occurrence within a *pesantren* population, the students must have adequate knowledge about scabies. This can be done by providing them with health education such as a lecture on scabies. The lecture should cover a general scope of scabies so the students will know how to identify, how to prevent, and when to seek for treatment. In this study, questionnaires were given to male *pesantren* students before and after a scabies lecture. The scabies questionnaire is divided into the following main topics: etiology, clinical symptoms, treatment, transmission, and prevention; and the level of knowledge of the students were studied per topic.

### *Knowledge of Pesantren Students on Scabies before Health Education*

As can be seen from the data and tables above, on the first three topics (etiology, clinical symptoms, and treatment), more than 50% of the students had poor level of knowledge. On the two latter topic (transmission and prevention), less than 50% of the students had poor level of knowledge. From this data we can see that in general, most of the children do not have a good level of knowledge on scabies prior to the health education. The level of knowledge of the students pertaining scabies prevention may be less than 50% but most of the students had poor level of knowledge, with only 36.5% of the students with good level of knowledge. This is in accordance to studies by Andayani[12] and Saroh[13] where most of the *pesantren* students had poor and or moderate level of knowledge. This lack in the level of knowledge may be because the students were not well informed about scabies as it is not part of their curriculum.[14] There is a slogan among *pesantren* students (*belum jadi santri kalau belum pernah kudisan,* you are not a *pesantren* student if you have not experienced a scabies infestation) which gave them the mindset that it is normal to have scabies thus they do not have the urge to treat or find out more about the disease.

On the other hand, the knowledge of these students on scabies transmission is good; 52.9% of the students had good knowledge prior to the health education. A study in 2013 in *Pesantren As'ad* Jambi 64.3% of the students had a good level of knowledge on the transmission of scabies, without previous health education on scabies.[15]

### *Knowledge of Pesantren Students on Scabies after Health Education*

After the lecture on scabies, the same students were given the questionnaire again. The tables in results show that on all 5 topics on scabies, most of the students had a good level of knowledge, all of which are over 60%. Less than 10% of the students who originally had poor level of knowledge remained in the same level. There is a significant decrease in the number of students with moderate and poor level of knowledge on all 5 topic of scabies, and an increase in the number of students with good level of knowledge (*marginal homogeneity* $p<0.01$). In this study, after the students were given the scabies lecture, they were immediately given the questionnaires again to measure their level of knowledge. Thus, this method ensured that the students did not receive information from other sources which could have affected the results. The results and the method employed showed that health education by means of lecture did have a significant effect on the level of knowledge on scabies of these *pesantren* student.

### *The Effectiveness of Health Education*

Studies on other parasitic infections show that health education has a significant effect on increase the knowledge of the respondents towards a disease and to reduce the prevalence of the disease itself within the community.[13,16] The results of this study are in line with these previous studies which show that health education has an effect in increasing the level of knowledge on scabies in *pesantren* students. This data is important as increasing the level of knowledge has an impact on the attitude and practice of a person towards diseases. The resource person who gave the health education are experts in their field with years of experience regarding scabies and other parasitic infections. The material was given using presentation slides in simple words, vivid images and presented in a way that the students could easily understand.

## Conclusion

Before health education more than 50% of the students had poor level of knowledge on the etiology (71 people 68.3%), clinical symptoms (67 people, 64.2%), and treatment (54 people, 51.9%) of scabies. On the other two topics, 29 people (27.9 %) people had poor level of knowledge on scabies transmission and 41 people (39.4%) had poor level of knowledge on scabies prevention.

After health education more than 50% of the students had good level of knowledge on each scabies topic: on etiology, 86 people; on clinical symptoms, 76 people; on treatment, 68 people; on transmission, 86 people; and on prevention, 76 people. The number of students with moderate and poor level of knowledge on each topic decreased significantly. Health education is effective to increase the level of knowledge on scabies

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